

## HEMILEUCA BUDLEYI.

BY CAROLINE GRAY SOULE, BROOKLINE, MASS.

THE cocoons came from Mexico. Early in June the moths began to emerge and mated readily.

On June 9th the first eggs were laid. They were opaque, porcelain-white, set on end, with a thin and transparent spot in the upper end, through which the contents showed green. In ten days a black dot appeared in the green spot and increased in size until it filled it. This was the head of the larva. The eggs grew grayish, and hatched on the twenty-eighth day, July 7th.

The hatchlings had large black heads, and their yellow bodies tapered from head to anal end. The setae were shining black, and the branching spines on the dorsum of the thoracic segments were long. Their legs were shining black, prolegs yellow the anal ones having a black patch on each.

At first the larvae crawled constantly, spinning as they went, and moving very rapidly. They did not eat the eggshells.

Although the eggs were laid on several successive nights all hatched within a few hours.

The larvae rested in a dense group on a leaf of wild cherry or on the tin, and fed in close rows, all headed in one direction.

The first moult occurred in seven days. The head was black. The body was black with long, yellow, branching spines, more like those of *maia* than any other. The legs and prolegs were black.

The second moult came in seven days. The larvae were all black with yellow spines, more branching and longer than before, those on the thoracic segments being of a more orange color, the others of bright canary yellow. If the caterpillars stayed on the leaf on which they had fed they spun very little silk to moult on, but if they moved to another leaf they spun a dense mat of silk. They ate their skins after each moult.

The third moult came in seven days, and made the larvae more velvety black and more golden yellow than before, and the spines larger and still more branching.

The eversible sacs were conspicuous on the black skin, like white papillae, appearing and disappearing with almost the regularity of the ticking of a clock except when the caterpillar was disturbed or in motion. At this stage I found that each company of larvae contained some much smaller than the rest, and these were in danger of harm from the crowding of the larger ones, so I removed all the small ones to a tin by themselves, where they thrived and grew much faster than before.

I found that one larva in a tin alone would not thrive, but stopped eating and

died. Two in a tin would eat, but not heartily, and six or eight were needed to make a success of life, at this stage.

The fourth moult came in nine days. The caterpillars were as before except that the long spines on the thoracic and anal segments were of a dull buff color, much longer and more branching than the others. Few larvae ate their skins after this moult. A few left the group and fed on separate leaves, but most of them fed in close rows as before, lying as near each other as their spines would allow.

Before each moult the yellow color disappeared from the spines, leaving them like little glass tubes. This time the caterpillars spun the leaf to the twig, then spun a mat on the leaf and lay side by side to moult.

The fifth moult took place ten days after the fourth, bringing no change of color except a white dot at each end of the spiracles, which hitherto had been difficult to find, even with a lens, they were so black, but had now a whitish line at the opening, as well as a dot at each end. The larvae ate most of their cast skins. The eversible sacs were still more noticeable, but no odor was perceptible. Ten days later there was a faint, pleasant odor when the boxes were opened.

The caterpillars ate voraciously, and seemed to have no instinct in choosing their leaves. I found that certain saplings had specially succulent-looking leaves and gave them to several sets of larvae. In every case the larvae had the symptoms of severe colic but would not refuse the leaves. By giving them older leaves from a tree, not a sapling, I could cure the sick, but they would not choose the older leaves themselves, taking whichever kind was nearer. They were now a little over four inches long, and the most superb caterpillars I ever saw.

On August 28th, twelve days from the last moult, they emptied the intestines and, two days later, spun dark brown cocoons, drawing leaves together around them, and sometimes spinning to a twig. Each cocoon had one end open, and, about half an inch within this open end, a grating of silk across the cocoon, admitting air.

The pupae were not formed — or did not cast the larva-skin — until September 12th, sixty-seven days from the egg.

Part of a second brood omitted the fifth moult, pupating instead of moulting, while the rest of the brood moulted five times. This second brood was sixty-nine days in passing from egg to pupa.

The spines of *budleyi* urticated as much as those of *io*, rather more in the last stage, but with no lasting effect.

My larvae preferred *Prunus virginiana*, and would not eat *P. serotina* after the second moult, but those I sent to Miss Eliot, half of each brood, fed wholly on *P. serotina*.

When the caterpillars reached the length of four inches, or nearly that, I had but two in each large tin to insure their having plenty of space and food supply.

The cocoons made by the larvae fed on *P. virginiana* were more tan colored than those of the larvae fed on *P. scrotina*, which were very dark brown, almost blackish.

### SPIDER CALLS.

BY WM. T. DAVIS, NEW BRIGHTON, STATEN ISLAND, N. Y.

IN the August PSYCHE, Mr. Fred. H. Lahee gives an account of the drumming habits of *Lycosa kochii*. On Staten Island I have on several occasions heard the purring spiders, once as early as March 24th. On a warm day in April, 1887, I made this note; "A number of spiders were running about and when they came to a dead leaf in the proper position, they struck their palpi rapidly against it, producing quite a noise thereby. I could not see that they attracted one another though I suspect they were all males that produced the noise, in which case they would naturally keep at a distance."

In his chapter on "Notes by the way" in *Pepacton*, Mr. Burroughs writes:—"I have discovered, also, that we have a musical spider. One sunny April day, while seated on the borders of the woods, my attention was attracted by a soft uncertain purring sound that proceeded from the dry leaves at my feet. On investigating the matter, I found that it was made by a busy little spider. Several of them were travelling about over the leaves as if in quest of some lost cue or secret. Every moment or two they would pause, and by some invisible means make the low purring sound referred to."

These additional references do not add anything new to Mr. Lahee's observations, but have been submitted at the suggestion of Mr. Emerton, who has kindly identified one of the drumming spiders from this island as a male *Lycosa kochii*.